

CLAIMS

What is Claimed is:

- 5 1. A method of processing a data stream having a plurality of packets,
comprising the steps of:
- a) setting a plurality of parsing result codes to an initial value;
 - b) receiving a particular packet of said plurality of packets;
 - c) searching for a first plurality of codes in a plurality of fields in a first
10 portion of said particular packet;
 - d) if said first plurality of codes are found in said first portion, selecting a
data payload of said particular packet;
 - e) scanning for a second plurality of codes in said data payload of said
particular packet;
 - 15 f) if one of said second plurality of codes is found, determining one or more
of said parsing result codes;
 - g) adding said plurality of parsing result codes to said particular packet; and
 - h) repeating said steps a) through g) for each of said plurality of packets.
- 20 2. A method as recited in Claim 1 further comprising the step of:
creating an index table having a plurality of entries each having a first field and
a second field, wherein said first field has said parsing result codes and said second
field has a packet pointer associated with one of said packets.

3. A method as recited in Claim 2 further comprising the step of:

using said index table to select one or more of said packets to send to a decoder, wherein said index table facilitates decoding said packets.

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4. A method as recited in Claim 1 wherein a format of said data stream is a transport stream compliant with a Digital Video Broadcast (DVB) standard, wherein said transport stream includes MPEG data, and wherein said plurality of fields includes a first field having an adaptation field control (AF) code and a second field having a packet identification (PID) code.

5. A method as recited in Claim 4 wherein if said adaptation field control (AF) code has a predetermined value, starting said step e) after an end of an initial portion of said data payload of said particular packet.

6. A method as recited in Claim 1 wherein a format of said data stream is a transport stream compliant with a Digital Satellite System (DSS) broadcast standard, wherein said transport stream includes MPEG data, and wherein said plurality of fields includes a first field having a Service Channel Identification (SCID) code, and a second field having a Header Designator (HD) code.

7. A method as recited in Claim 6 wherein if said Header Designator (HD)-code has a predetermined value, starting said step e) after an end of an initial portion of said data payload of said particular packet.

5 8. A method as recited in Claim 6 wherein said step g) includes adding a padding code to each packet.

9. A method as recited in Claim 1 wherein said second plurality of codes includes a first code representing a start of a video PES (packetized elementary stream) packet having MPEG video data and a second code representing a start of a MPEG video frame.

10. A method as recited in Claim 9 wherein said step e) includes scanning for said second plurality of codes in said data payload of said particular packet and in an end portion of a second data payload of a prior packet which has said first plurality of codes.

11. A method as recited in Claim 10 wherein said plurality of parsing result codes includes a first field having a code indicating upper bits of a temporal reference code, a second field having a code indicating whether one of said first and second codes is partitioned into said particular packet and said prior packet, a third field having a code indicating whether a picture coding type code was found in said

particular packet, and a fourth field having a code indicating whether a stream id code-
which identifies MPEG video data was found in said particular packet.

12. A method of processing a data stream having a plurality of packets,
5 comprising the steps of:

a) searching for a first plurality of codes in a first portion of each packet to
determine whether to select an associated data payload of said packet and setting a
plurality of parsing result codes to an initial value;

b) if said associated data payload of said packet is selected, scanning for a
10 second plurality of codes in said associated data payload of said packet to determine
one or more of said plurality of parsing result codes; and

c) adding said plurality of parsing result codes to each packet.

13. A method as recited in Claim 12 further comprising the step of:
15 creating an index table having said parsing result codes and a plurality of
packet pointers indicating where said packets are located in a mass storage device.

14. A method as recited in Claim 13 further comprising the step of:
using said index table to select one or more of said packets to send to a
20 decoder, wherein said index table facilitates decoding said packets.

15. A method as recited in Claim 12 wherein a format of said data stream is a
transport stream compliant with a Digital Video Broadcast (DVB) standard, wherein

said transport stream includes MPEG data, and wherein said first portion includes a –
first field having an adaptation field control (AF) code and a second field having a
packet identification (PID) code.

5 16. A method as recited in Claim 15 wherein if said adaptation field control
(AF) code has a predetermined value, starting said step b) after an end of an initial
portion of said associated data payload of said packet.

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10 17. A method as recited in Claim 12 wherein a format of said data stream is a
transport stream compliant with a Digital Satellite System (DSS) broadcast standard,
wherein said transport stream includes MPEG data, and wherein said first portion
includes a first field having a Service Channel Identification (SCID) code, and a
second field having a Header Designator (HD) code.

15 18. A method as recited in Claim 17 wherein if said Header Designator (HD)
code has a predetermined value, starting said step b) after an end of an initial portion
of said associated data payload of said packet.

20 19. A method as recited in Claim 17 wherein said step c) includes adding a
padding code to each packet.

20. A method as recited in Claim 12 wherein said second plurality of codes
includes a first code representing a start of a video PES (packetized elementary

stream) packet having MPEG video data and a second code representing a start of a-
MPEG video frame.

21. A method as recited in Claim 20 wherein said step b) includes scanning
5 for said second plurality of codes in said associated data payload of said packet and in
an end portion of a data payload of a prior packet which has said first plurality of codes
to determine one or more of said plurality of parsing result codes.

22. A method as recited in Claim 21 wherein said plurality of parsing result
10 codes includes a first field having a code indicating upper bits of a temporal reference
code, a second field having a code indicating whether one of said first and second
codes is partitioned into said packet and said prior packet, a third field having a code
indicating whether a picture coding type code was found in said packet, and a fourth
15 field having a code indicating whether a stream id code which identifies MPEG video
data was found in said packet.

23. An apparatus for parsing a data stream having a plurality of packets in a
host system which includes a host processor, comprising:

a first circuit configured to search for a first plurality of codes in a plurality of
20 fields in a first portion of each packet to select particular packets from said plurality of
packets, wherein each particular packet has said first plurality of codes;

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a second circuit coupled to said first circuit, wherein said second circuit is
configured to scan for a second plurality of codes in a data payload of each particular
packet to determine one or more of a plurality of parsing result codes; and

5 a third circuit coupled to said first circuit, wherein said third circuit is configured
to add said plurality of parsing result codes to each packet.

24. An apparatus as recited in Claim 23 wherein said host processor uses
said plurality of parsing result codes of each packet to generate an index table,
wherein said host system includes a mass storage device, and wherein said index
10 table has said parsing result codes and a plurality of packet pointers indicating where
said packets are located in said mass storage device.

25. An apparatus as recited in Claim 24 wherein said host processor uses
said index table to select one or more of said packets to send to a decoder, and
15 wherein said index table facilitates decoding said packets.

26. An apparatus as recited in Claim 23 wherein a format of said data stream
is a transport stream compliant with a Digital Video Broadcast (DVB) standard,
wherein said transport stream includes MPEG data, and wherein said first portion
20 includes a first field having an adaptation field control (AF) code and a second field
having a packet identification (PID) code.

27. An apparatus as recited in Claim 26 wherein if said adaptation field control (AF) code has a predetermined value, said second circuit starts scanning for said second plurality of codes after an end of an initial portion of said data payload of said particular packet to determine one or more of said plurality of parsing result codes.

28. An apparatus as recited in Claim 23 wherein a format of said data stream is a transport stream compliant with a Digital Satellite System (DSS) broadcast standard, wherein said transport stream includes MPEG data, and wherein said first portion includes a first field having a Service Channel Identification (SCID) code, and a second field having a Header Designator (HD) code.

29. An apparatus as recited in Claim 28 wherein if said Header Designator (HD) code has a predetermined value, said second circuit starts scanning for said second plurality of codes after an end of an initial portion of said data payload of said particular packet to determine one or more of said plurality of parsing result codes.

30. An apparatus as recited in Claim 28 wherein said third circuit is configured to add a padding code to each packet.

31. An apparatus as recited in Claim 23 wherein said second plurality of codes includes a first code representing a start of a video PES (packetized elementary

stream) packet having MPEG video data and a second code representing a start of a –
MPEG video frame.

32. An apparatus as recited in Claim 31 wherein said second circuit is
5 configured to scan for said second plurality of codes in said data payload of said
particular packet and in an end portion of a data payload of a prior particular packet to
determine one or more of said plurality of parsing result codes.

33. An apparatus as recited in Claim 32 wherein said plurality of parsing
10 result codes includes a first field having a code indicating upper bits of a temporal
reference code, a second field having a code indicating whether one of said first and
second codes is partitioned into said particular packet and said prior particular packet,
a third field having a code indicating whether a picture coding type code was found in
said particular packet, and a fourth field having a code indicating whether a stream id
15 code which identifies MPEG video data was found in said particular packet.

34. An apparatus as recited in Claim 23 wherein said plurality of parsing
result codes are set to an initial value before searching each first portion of said
20 plurality of packets.

35. An apparatus as recited in Claim 23 wherein said second circuit
includes:

a shift register having a plurality of registers coupled in series;

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a first detector coupled to said shift register for detecting a first pattern of bits of—
one of said second plurality of codes in a first group of said registers;

a second detector coupled to said shift register for detecting a second pattern of
bits of one of said second plurality of codes in a second group of said registers; and

5 a comparator coupled to said shift register for comparing a third pattern of bits in
one of said registers with a fourth pattern of bits representing a particular code.

36. A method of processing a data stream having a plurality of packets,
comprising the steps of:

- a) parsing said plurality of packets to determine a plurality of parsing result
codes for each packet;
- b) adding said plurality of parsing result codes to each packet;
- c) creating an index table having said parsing result codes and a plurality of
packet pointers indicating where said packets are located in a mass storage device;
- d) storing said packets; and
- e) selecting one or more of said stored packets to send to a decoder using
said index table, wherein said index table facilitates decoding said packets.

37. A method as recited in Claim 36 wherein said step a) includes:

20 searching for a first plurality of codes in a first portion of each packet to
determine whether to select an associated data payload of said packet and setting
said plurality of parsing result codes to an initial value; and

if said associated data payload of said packet is selected, scanning for a second plurality of codes in said associated data payload of said packet to determine one or more of said plurality of parsing result codes.

5 38. A method as recited in Claim 37 wherein a format of said data stream is a transport stream compliant with a Digital Video Broadcast (DVB) standard, wherein said transport stream includes MPEG data, and wherein said first portion includes a first field having an adaptation field control (AF) code and a second field having a packet identification (PID) code.

10 39. A method as recited in Claim 37 wherein a format of said data stream is a transport stream compliant with a Digital Satellite System (DSS) broadcast standard, wherein said transport stream includes MPEG data, and wherein said first portion includes a first field having a Service Channel Identification (SCID) code, and a second field having a Header Designator (HD) code.

15 40. A method as recited in Claim 37 wherein said second plurality of codes includes a first code representing a start of a video PES (packetized elementary stream) packet having MPEG video data and a second code representing a start of a
20 MPEG video frame.

 41. A method as recited in Claim 40 wherein said plurality of parsing result codes includes a first field having a code indicating upper bits of a temporal reference

code, a second field having a code indicating whether one of said first and second – codes is partitioned, a third field having a code indicating whether a picture coding type code was found in said packet, and a fourth field having a code indicating whether a stream id code which identifies MPEG video data was found in said packet.

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